

NOTEWORTHY VASCULAR PLANT COLLECTIONS  
FROM THE RED RIVER OF ARKANSAS AND LOUISIANA, U.S.A.

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ABSTRACT

A plant collecting excursion by boat on a ca. 50 km stretch of the Red River straddling the Arkansas-Louisiana state line yielded several interesting botanical discoveries. The second record of *Loeflingia squarrosa* from Arkansas was documented. Collections of *Dalea lanata* and *Heliotropium convolvulaceum* were made from both states. These collections extend the ranges of these taxa several hundred river-km downstream on the Red River. Our collections of *D. lanata* and *H. convolvulaceum* in Louisiana represent the first records of these species for that state.

RESUMEN

Una excursión de recogida de plantas en bote en un trecho de ca. 50 km en el Red River a caballo en la frontera estatal Arkansas-Luisiana produjo varios descubrimientos botánicos interesantes. Se documentó la segunda cita de *Loeflingia squarrosa* de Arkansas. Se realizaron colecciones de *Dalea lanata* y *Heliotropium convolvulaceum* en ambos estados. Estas colecciones extendieron los rangos de estos taxa varios cientos de kilómetros río abajo en el Red River. Nuestras colecciones de *D. lanata* y *H. convolvulaceum* en Luisiana representan las primeras citas de estas especies para el estado.

INTRODUCTION

We carried out a plant collecting excursion by boat on the Red River in southwestern Arkansas and northwestern Louisiana on 15 and 16 August 2012. The objective was to explore the habitats along the river, particularly sand bars on the river in its present course and relict sand bars abandoned when the river shifted course. In our region, plant collections from streams and rivers seem to frequently be from easily accessible points such as bridges and boat launches (pers. obs.). It was hoped that our approach using a boat would yield some interesting records that may otherwise not be documented.

METHODS

We launched at the Arkansas Highway 160 bridge (latitude and longitude in decimal degrees: 33.089622, -93.858549) and proceeded upstream for ca. 20 km, then turned around and explored downstream into Louisiana, terminating at the Louisiana Highway 2 bridge (latitude and longitude in decimal degrees: 32.892751, -93.820295). A stretch of approximately 50 river-km was covered during our field work (Fig. 1). A 14-foot flat bottom aluminum boat with a shallow water marine drive “go-devil” motor was used for our study. Capable of navigating water 45 cm deep and handling the occasional underwater sandbar or mudflat, this set-up seemed most useful. Water levels were slightly below average for that time of the year.

RESULTS AND DISCUSSION

Our field work on the Red River yielded several noteworthy plant records. The diminutive *Loeflingia squarrosa* Nutt. was collected from an abandoned point bar in Arkansas. This species is very rare in Arkansas and Louisiana and is ranked as S1 in both states (NatureServe 2013). Previous records of *L. squarrosa* from Arkansas and Louisiana are from xeric sandhill woodlands associated with Tertiary formations (Singhurst & Holmes 1999; Reid & Faulkner 2006). Our record, only the second from Arkansas, was from a dry sandy grassland

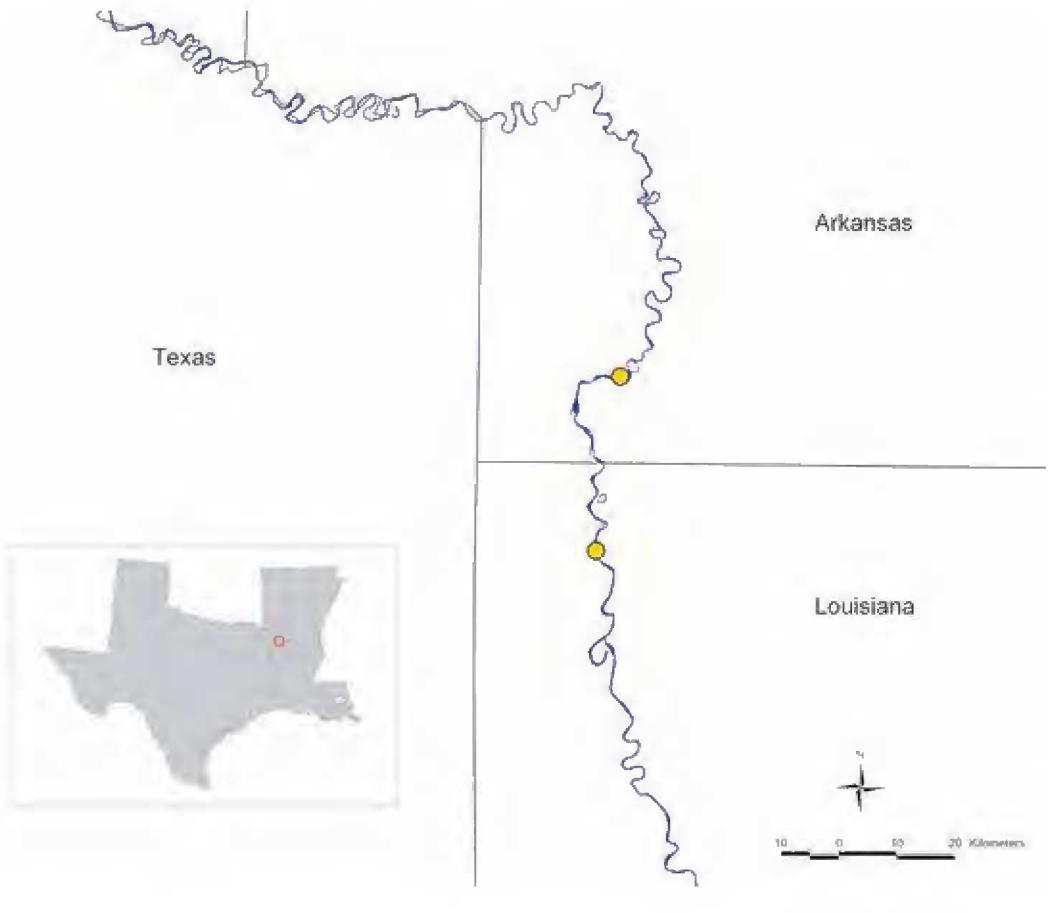


FIG. 1. Map showing Red River in northwestern Louisiana and southwestern Arkansas, U.S.A. The yellow circles delimit the stretch of the River that was botanically explored on 15–16 August 2012.

developed on recently-deposited sediment. This grassland was dominated by *Sporobolus cryptandrus* (Torr.) A. Gray and *Eragrostis secundiflora* J. Presl on the highest driest areas. Thickets of *Prunus angustifolia* Marshall were conspicuous. Other characteristic species included *Heterotheca subaxillaris* (Lam.) Britton & Rusby, *Croptilon divaricatum* (Nutt.) Raf., and *Diodia teres* Walter. Lower slopes of this abandoned bar had heavy cover of the exotic *Cynodon dactylon* (L.) Pers.

Collections of *Dalea lanata* Spreng. and *Heliotropium convolvulaceum* (Nutt.) A. Gray were made from Arkansas and Louisiana. Collections of these taxa in both states are significant. *Dalea lanata* is state-rare, ranked as S2, in Arkansas (NatureServe 2013) and was previously known only from sand bars on the Arkansas River in the central part of the state (Smith 1988; Gentry et al. 2013). In Arkansas, we collected *Dalea lanata* from the same site as *Loeflingia squarrosa*. It was observed at one additional site on a less stable and sparsely-vegetated sand bar farther upstream. In Louisiana, one population of *D. lanata* was documented from a dry sand dune field which is apparently shaped by seasonal flooding. Since this species had not previously been reported for Louisiana by MacRoberts (1984, 1989), Thomas and Allen (1998), USDA, NRCS (2013), or NatureServe (2013), our Louisiana record of *D. lanata* is regarded as the first for the state. *Dalea lanata* is a species of the southwestern U.S. that occurs on sand dunes and in sandy river valleys, with known occurrences on the Red River in Oklahoma and Texas (Correll & Johnston 1970; McGregor 1986; Hoagland et al. 2004). Our records of *D. la-*



FIG. 2. **Top:** Sandbar on Red River in Miller County, Arkansas, at latitude/longitude 33.149814, -93.779734 (decimal degrees). *Heliotropium convolvulaceum* was collected at this site and a small population of *Dalea lanata* was observed. Image was taken facing downstream (west-northwest) where river channel is visible in background. **Bottom:** Open dry sand dune field in Bossier Parish, Louisiana, at latitude/longitude 32.956424, -93.831097 (decimal degrees). This dune-like area was associated with a portion of a point bar apparently where seasonal flood waters pass to the east of the most stable part of the bar which is wooded. Image was taken oriented roughly southwest and facing the tree line on the most stable part of the bar. *Heliotropium convolvulaceum* (a few plants flowering in foreground) and *Dalea lanata* were present on this site.

*nata* are approximately 500 river-km downstream from nearest reported populations in Bryan Co., Oklahoma, and Grayson Co., Texas (Turner et al. 2003; Hoagland et al. 2004).

*Heliotropium convolvulaceum* has a similar distribution as *Dalea lanata* and is similar ecologically, preferring dry loose sands (Correll & Johnston 1970; Kaul 1986). As with *D. lanata*, it is rare in Arkansas with a

ranking of S2 (NatureServe 2013) and was previously known only from sand bars on the Arkansas River (Smith 1988; Gentry et al. 2013). It is herein reported in Louisiana for the first time as other floristic references do not include it in the state (MacRoberts 1984, 1989; Thomas & Allen 1998; NatureServe 2013; USDA, NRCS 2013). Our collections of *H. convolvulaceum* are approximately 300 river-km downstream from previously documented stations along the Red River in McCurtain Co., Oklahoma, and Lamar Co., Texas (Turner et al. 2003; Hoagland et al. 2004).

*Dalea lanata* and *Heliotropium convolvulaceum* were sympatric on sparsely vegetated sand bars and dunes (Fig. 2). Close associates of these species included *Cycloloma atriplicifolia* (Spreng.) J.M. Coult., *Cyperus esculentus* L., *Heterotheca subaxillaris*, and *Sporobolus cryptandrus*.

#### VOUCHER SPECIMENS

##### **Loeflingia squarrosa** (Caryophyllaceae)

Voucher Specimen: **ARKANSAS. Lafayette Co.:** Slay Bend on Red River, ca. 8 river-km upstream from AR 160 bridge, ca. 8.8 air-km NE of Doddridge, 33.1424840, -93.8342270, abandoned point bar supporting sandy grassland, with *Sporobolus cryptandrus*, *Eragrostis secundiflora*, *Heterotheca subaxillaris*, *Diodia teres*, *Croptilon divaricatum*, and *Prunus angustifolia* thickets, common and scattered, 15 Aug 2012, Reid and Lewis 8278 (ANHC, LSU).

##### **Dalea lanata** (Fabaceae)

Voucher Specimens: **ARKANSAS. Lafayette Co.:** Slay Bend on Red River, ca. 8 river-km upstream from AR 160 bridge, ca. 8.8 air-km NE of Doddridge, 33.1424840, -93.8342270, abandoned point bar supporting sandy grassland, with *Sporobolus cryptandrus*, *Eragrostis secundiflora*, *Heterotheca subaxillaris*, *Diodia teres*, *Croptilon divaricatum*, and *Prunus angustifolia* thickets, abundant in small area, 15 Aug 2012, Reid and Lewis 8275 (ANHC, LSU). **Miller Co.:** sandbar on Red River S of Haley Lake, ca. 14 river-km upstream from AR 160 bridge, ca. 13 air-km WNW of Bradley, 33.1494510, -93.7790070, only a few plants seen in small area, no voucher specimen collected. **LOUISIANA. Bossier Parish:** Red River ca. 10 river-km upstream from LA 2 bridge, ca. 6 air-km E of Mira and ca. 8.7 air-km NE of Hosston, 32.9532900, -93.8315800, open sparsely vegetated sandy dune field on east side of river bed, dry loose sand with *Heterotheca subaxillaris*, one large plant ca. 1 m radius and a few smaller satellite plants, 16 Aug 2012, Reid and Lewis 8299 (LSU).

##### **Heliotropium convolvulaceum** (Boraginaceae)

Voucher Specimens: **ARKANSAS. Miller Co.:** Sandbar on Red River S of Haley Lake, ca. 14 river-km upstream from AR 160 bridge, ca. 13 air-km WNW of Bradley, 33.1494510, -93.7790070, common on high dry sand bar with *Sporobolus cryptandrus*, *Strophostyles helvola* (L.) Elliott, *Heterotheca subaxillaris*, and *Cycloloma atriplicifolia*, 15 Aug 2012, Reid and Lewis 8293 (ANHC, LSU). **LOUISIANA. Bossier Parish:** Red River ca. 10 river-km upstream from LA 2 bridge, ca. 6 air-km E of Mira and ca. 8.7 air-km NE of Hosston, 32.9532900, -93.8315800, open sparsely vegetated sand dune field on east side of river bed, dry loose sand, common and scattered with *Heterotheca subaxillaris*, *Cycloloma atriplicifolium*, and *Cyperus esculentus*, 16 Aug 2012, Reid and Lewis 8300 (LSU).

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